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Xerox Docket No.: D/A3570

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Ofer DAGAN et al. Group Art Unit: 2884

Application No.: 10/653,190 Examiner: C. SUNG

Filed: September 3, 2003 Docket No.: 116956

For: DIRECT DETECTION OF HIGH-ENERGY SINGLE PHOTONS

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the December 13, 2005, Office Action, reconsideration of the rejections is respectfully requested in light of the following remarks. Claims 1-34 are pending in this application.

Applicants thank the Examiner for the indication that claims 17-19 and 30-31 contain allowable subject matter.

The Office Action rejects claims 1, 3-5, 8, 20-22, 24-26, 29 and 32-34 under 35 U.S.C. §102(e) over Iwanczyk (U.S. Patent Application Publication No. 2003/0021382); claim 2 under 35 U.S.C. §103(a) over Iwanczyk in view of Cox (U.S. Patent No. 5,464,984); claims 6, 7, 9, 10, 23, 27 and 28 under 35 U.S.C. §103(a) over Iwanczyk; claims 11-15 under 35 U.S.C. §103(a) over Iwanczyk in view of Zur (U.S. Patent No. 6,243,441); and claim 16 under 35 U.S.C. §103(a) over Iwanczyk in view of Pieters (U.S. Patent No. 3,787,620). The rejections are respectfully traversed.

In particular, none of the applied references, alone or in combination, disclose or suggest a method for detecting single photons of high energy radiation that includes capturing high energy photons, the photons generating high energy ionizing particles within a polycrystalline film, collecting the generated charges, reading out the collective charges and analyzing the readout charges thereby to detect single photons, as recited in independent claim 1 and similarly recited in claim 26.

Iwanczyk teaches a method for fabricating in a thermal evaporation system a polycrystalline film capable of directly detecting radiation (Abstract). Moreover, Iwanczyk teaches the "direct detector approach," which is an approach used to manufacture a detector, which significantly improves the detective quantum efficiency of the detector (paragraph [0034]). However, Iwanczyk does not teach actually detecting photons, as claimed in claims 1 and 26. For Iwanczyk to anticipate the method steps of method claims 1 and 26, Iwanczyk must affirmatively teach each and every method step claimed. Iwanczyk does not teach detecting photons, and merely teaches manufacturing a photon detector. Thus, Iwanczyk fails to anticipate each and every feature of independent claims 1 and 26.

Moreover, Iwanczyk merely teaches a detector that may detect photons that interact with the detector, but does not teach high energy photons being detected. High energy photons are photons that have an energy that is, for example, greater than 10 KeV, as disclosed in the specification at, for example, page 5, line 28. Thus, Iwanczyk fails to disclose or suggest each and every feature of independent claims 1 and 26.

Furthermore, Iwanczyk fails to disclose or suggest detecting single photons. Iwanczyk merely teaches a detector that may detect photons, but does not disclose or suggest that the detector may detect single photons. Detecting single photons is the detection of 0-5, photons in a pixel per period of measurement, as indicated in the specification at, for example, page 4, lines 27-29. Iwanczyk teaches measuring large numbers of x-ray photons, and Iwanczyk's

detector records a signal corresponding to the combined effect of all the x-rays that impinge on the detector pixel in a certain time interval, rather than record each individual photon, which requires a higher sensitivity detector than Iwanczyk's and specifically designed electronics. Thus, because Iwanczyk fails to disclose or suggest detecting single photons, Iwanczyk fails to anticipate each and every feature of independent claims 1 and 26.

Finally, Iwanczyk fails to teach that the detected photons generate ionizing particles within a polycrystalline film. Iwanczyk merely teaches a radiation detector 302 that transmits signal to an image processor 308 (paragraph [0008]) and also teaches a detector 404 that is read out with a TFT read-out 406 and associated electronics (paragraph [0090]), but does not teach that ionizing particles within the polycrystalline film are generated by the photons.

For at least these reasons, Iwanczyk fails to anticipate each and every feature of independent claims 1 and 26. Thus, independent claims 1 and 26, and their dependent claims, are patentable over Iwanczyk. Accordingly, withdrawal of the rejection of the claims under 35 U.S.C. §102(e) is respectfully requested.

Cox teaches an x-ray detector that includes a scintillator, a sensor array, processing circuits and a ceramic layer (Abstract).

Zur teaches a radiation imager that includes a plurality of radiation sensing elements to provide real-time radiation data and integrated radiation data (Abstract).

Pieters teaches a system for analyzing features according to their optical density in which an image of the features is formed on a television camera tube target and a video signal is generated by scanning in known manner (Abstract).

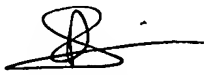
Accordingly, none of these references, alone or in combination, cure deficiencies in Iwanczyk and disclosing or rendering obvious the features of independent claims 1 and 26. Thus, independent claims 1 and 26, and their dependent claims, are patentable over a

combination of all the applied references. Accordingly, withdrawal of the rejections of the claims under 35 U.S.C. §102(e) and 35 U.S.C. §103(a) is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-34 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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